Title	**Demonstrate knowledge of quad vehicle performance and handling characteristics**		
Level	**4**	**Credits**	**6**

Purpose	People credited with this unit standard are able to: describe quad performance and handling characteristics; and explain quad performance capabilities.

Classification	Driving > Driver Educator

Available grade	Achieved

Guidance Information

1 References are available from the Accident Compensation Corporation, the Ministry of Transport, Waka Kotahi NZ Transport Agency (NZTA), and other transport agencies.

2 For assessment against this unit standard rider actions are an integral aspect of quad performance and handling. This includes weight transfer through body positioning, and coordinated control of throttle, clutch, and controls.

3 Definitions
Ditches and *drains* are those that the rider is able to ride over as opposed to riding through.
Handling characteristics for the purposes of this unit standard refer to how a quad behaves as the result of the interaction of its design and the dynamics present at the time.
Quad vehicle (quad) refers to a four wheel motor vehicle with motorcycle controls.

Outcomes and performance criteria

Outcome 1

Describe quad performance and handling characteristics.

Performance criteria

1.1 The effects of load distribution on quad handling characteristics are described in terms of stability and manoeuvring.

Range quad by itself, quad with trailer.

1.2 The variations in handling capabilities and cross country performance between four wheel drive and two wheel drive quads are described.

Range braking performance, steering response, effect of speed, gradient and traction.

Outcome 2

Explain quad performance capabilities.

Performance criteria

2.1 Quad capability to cross low traction surfaces is explained in terms of quad tyre tread design, suspension, and transmission.

Range low friction surfaces include – wet grass, muddy areas, ice, sand, gravel.

2.2 Quad capability to negotiate water obstacles is explained.

Range position of exhaust outlet and air cleaner, tyre buoyancy, suspension.

2.3 Quad capability to cross rough and broken ground, including ditches and drains, is explained in terms of wheel size, suspension, and transmission.

2.4 Quad capability to ascend and descend hills is explained in terms of tyres, suspension, transmission, and centre of gravity.

2.5 Quad capability to traverse side slopes is explained in terms of quad tyres, suspension, transmission, centre of gravity, wheel base dimensions and speed.

2.6 Quad capability to traverse soft terrain is explained in terms of suspension, tyres, load, speed, and gear selection.

2.7 Quad capability to traverse uneven terrain is explained in terms of suspension, tyres, load, speed, and gear selection.

2.8 Quad limitations in relation to travelling at speed are explained in terms of quad design.

Range wheel base, suspension, tyres, steering geometry.

2.9 Factors that affect quad braking performance are explained in relation to speed and the demands of terrain.

Range factors – wheel base, tyres, suspension, braking system; demands of terrain – crossing side slopes, on dry hard surfaces.

Planned review date	31 December 2025

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	6 May 1999	31 December 2023
Review	2	28 July 2003	31 December 2023
Review	3	16 April 2010	31 December 2023
Review	4	28 April 2022	N/A

Consent and Moderation Requirements (CMR) reference	0014

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Hanga-Aro-Rau Manufacturing, Engineering, and Logistics Workforce Development Council info@mito.org.nz if you wish to suggest changes to the content of this unit standard.